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ABSTRACT

This simulation uses a science fiction setting to capture the unparalled adventure, danger, and uncertainty of the colonization period in United States history. The simulation can be done in small groups or individually, and value judgments affect the outcome of the simulation. The premise of the simulation is that due to overpopulation, starvation, and pestilence, the United States has decided to experiment with building a space colony on Mars, tentatively dubbed "Jamestown II." The simulation is composed of eight basic problems. The four considered before the trip are to: (1) submit a blueprint and cost estimates of the proposed colony within the given area; (2) determine the jobs and requisite skills for the 500 colonists; (3) decide which essential supplies must be taken on the initial trip; and (4) propose laws or rules for governing the colony. The four problems considered after colonization are to: (1) write a speech to address questions posed by 200 disgruntled colonists who want to return to earth; (2) decide what action should be taken against two saboteurs; (3) convince the inhabitants of Mars that the colonists mean them no harm; and (4) write a report to the President of the United States evaluating the success or failure of the colony and recommending whether other colonies should be built. A schedule for the simulation is appended. (SM)

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Jamestown II: Building A New World

By Tony Sanchez

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The typical United States history course usually begins with the period of discovery followed by the era of colonization. This all-important phase of our history is not only the "table-setter" for other phases to build upon, but also relates a period of unparalled adventure, danger, and uncertainty, the resulting triumph of which helped mold the rugged Americanism of future generations.

But despite the promise of excitement it too often results in a dreary exercise in memorizing the Thirteen Colonies with a spattered mention of John Smith, Indians (namely Pocahontas and Squanto), Pilgrims, and Roger Williams. Left out are the plans, cost, hardship, and human intrigue and involvement that form the real story of colonization. There are those who certainly feel that other phases of our history are similarly short-changed, but there is a possible solution to help overcome the dilemma.

The advent of the simulation is not all that new. The social studies are aware of and moreover are using the device, especially with the microcomputer. Two problems, however, are readily apparent. First is the problem of quality. Too many simulations available today are simply not worth their high price, not to mention their failure to accomplish an instructor's specific objectives. Second is the problem of use. A microcomputer simulation can rarely involve more than a very small group of students at a time. This raises the problem of what to do with those students who are unable to get to the keyboard, especially if there are too few microcomputers available.

This is not to defame the microcomputer simulation. Its worth in specific cases is beyond measure and it possesses-- especially in the social studies-- that proverbial "potential." But what is also needed is a good "paper-and-pencil" simulation that can involve few or many at the instructor's discretion and which can be altered for whatever purpose deemed necessary. In whatever form, the simulation can still cover its basics: create or recreate a historical atmosphere for study and/or appreciation; allow the student decision-making power without personal risk; and contain teacher and student evaluation of success that serves as a lead-in to the historical lesson.

Back to the original concern: the colonization era. While it may serve a purpose to recreate the past atmosphere of the 1600s, perhaps it would be more pertinent to reverse the situation and create a present/futuristic scenario that would nevertheless involve the student in colonization problems. The proposed touch of science fiction-- which might not be as far-fetched as one might believe-- would more likely capture a student's involvement and result in an appreciation of past historical efforts when compared with and analyzed by the student.

This simulation is entitled "Jamestown II: Building A New World." It is intended for use in United States history classes or sociology classes. Both high school and junior high school students are capable of participating. The simulation is composed of eight basic problems. An instructor is encouraged to alter the format in any way he/she feels is necessary, though

specific suggestions are provided.

Curricular limitations and paperwork are the two greatest considerations an instructor will most likely face in the use of this simulation. While it would not be unrealistic to spend one class period on each problem, few curricula offer such flexibility. The amount of paperwork hinges on the instructor's decision to allow each student to tackle each part or to assign small groups to handle each; the latter choice will obviously reduce paperwork and the overall time spent on the simulation. Experience has proven that the best results can be obtained by involving the entire class in problems 1 and 8 of the project with the remaining problems handled by small groups.

Value judgements play a major role in the simulation. Thus, the instructor's evaluation will prove to be highly subjective on many occasions. This also frees the instructor to add more objective considerations if desired. But the key to the project is student participation. A student's opinion or idea must be encouraged and will hopefully promote discussion of controversial issues that arise.

The initial aspect of the simulation naturally lays the groundwork for the project. This is the critical part as well: the student must take the project in a reasonably serious vein. This could very well be the toughest aspect for the instructor.

A PREMISE underlies the project and leads to PROBLEM 1 of the simulation:

Overpopulation is taking its toll on our planet. Starvation and pestilence have become critical problems on every continent.

Food shortages and deadly viruses are scourges on the populace. Environmental pollution is also reaching the critical stage.

For these and (perhaps) other reasons, the United States has decided to experiment with the building of a space colony on Mars. NASA has tentatively dubbed it "Jamestown II." If this six-year project is a success, other colonies will be built and populated. With congressional approval and appropriations, the President has designated you as the project leader. All final decisions regarding the problems that will be faced are yours. The colony's ultimate success and survival are therefore your responsibility.

Before facing the problems of colonizing in space, you must be informed of these facts:

1) The area on Mars designated for the site of the colony has been cleared and awaits your building plans. All preparations shall be completed by the time of your arrival.

2) Jamestown II is designed to hold approximately 500 people. All have contractually agreed to live in the colony for six years.

3) There will be enough basic supplies (food, water, clothing, and medicine) to last two years. A supply transport will arrive from Earth every two years (the length of time required for a round-trip) with another load of basic supplies for two years.

4) Radio/visual contact with Earth will kept on a regular basis.

PROBLEM 1: Submit a blueprint drawing of the proposed colony

within the given limits of area and cost.

[SUCH IS THE PREMISE. AS STATED IT IS NOT ENTIRELY FANTASY. DISCUSSION, WHICH SHOULD INCLUDE THE ENTIRE CLASS, MAY YIELD ADDITIONAL REASONS FOR SUCH A VENTURE. THAT ASIDE, THE IMMEDIATE CONCERN OF PROBLEM 1 IS THE PHYSICAL AREA OF THE COLONY. THE ENVISIONED AREA IS CIRCULAR, MEASURING APPROXIMATELY 2 KILOMETERS (ABOUT 1.2 MILES) IN DIAMETER. THERE ARE THREE OPTIONS TO CHOOSE FROM. FIRST IS A SUBTERRANEAN CAVE OR CAVERN THAT IS SEALED AND DECOMPRESSED TO ALLOW MOVEMENT WITHIN THE COLONY WITHOUT LIFE-SUPPORT SYSTEMS BEING WORN. STUDENTS MAY VIEW THIS OPTION AS THE MOST CONFINING AND CUT-OFF FROM THE SURROUNDINGS. SECOND-- AND THE MOST SCIENCE FICTION OF THE SET-- IS AN AREA COVERED BY A TRANSPARENT PROTECTIVE DOME. THIS IS THE MOST POPULAR CHOICE, AS IT IS CONCEIVED TO BE THE LEAST CONFINING. THIRD IS AN OPEN AREA COMPOSED OF ONE LARGE SELF-CONTAINED STRUCTURE OR SEPARATE STRUCTURES CONNECTED BY SEALED THOROUGHFARES. THOUGH PERHAPS IT IS THE MOST REALISTIC OPTION, IT IS ALSO THE LEAST POPULAR.

UNDERSTANDING THE SHEER DISTANCE OF 2 KILOMETERS (1.2 MILES) SHOULD BE THE FIRST STEP. STUDENTS OFTEN UNDERESTIMATE OR OVERESTIMATE THE SIZE. POINTING OUT LOCAL LANDMARKS CONSTITUTING SUCH A DISTANCE BETWEEN THEM WOULD PROBABLY BE THE EASIEST PROCEDURE. THE SIZE OF STRUCTURES ON A BLUEPRINT DRAWING MIGHT ALSO SURPRISE THEM. SHOWING THE RELATIVE SMALLNESS OF THE SCHOOL BUILDING WITHIN SUCH AN AREA WILL AID IN THIS PROCESS.

UPON RELATING THE INFORMATION CONCERNING THE SIZE OF THE AREA WITHIN WHICH THE COLONY WILL BE BUILT AND ARRIVING AT A

DECISION AS TO WHICH OPTION TO USE (THE INSTRUCTOR MAY WISH TO USE A CLASS CONSENSUS FOR ONE MODEL TO BE DONE JOINTLY AND/OR HAVE EACH STUDENT SUBMIT HIS/HER OWN MODEL LATER). THE BULK OF THE DISCUSSION SHOULD CENTER AROUND WHAT FACILITIES (AND THEIR BASIC SIZES) SHOULD BE INCLUDED. LOGIC AND CREATIVENESS WILL BE EVIDENT HERE. THE SUGGESTION OF USING TWO CLASS PERIODS TO DISCUSS THE "GUTS" OF THE COLONY IS QUITE IN LINE TO BRING TO LIGHT THE ITEMS AND FACILITIES NECESSARY FOR THE VENTURE. AMONG THE FACILITIES THAT THE DISCUSSION SHOULD CONSIDER ARE THE FOLLOWING:

POWER SOURCE (A NUCLEAR POWER PLANT IS RECOMMENDED. DISCUSSION SHOULD HIT UPON ITS ADVANTAGES, DISADVANTAGES, AND OTHER POSSIBLE SOURCES. ITS LOCATION WILL PROBABLY BE A CONTROVERSY, WITH THE POSSIBILITY OF ITS BEING PLACED OUTSIDE THE COLONY ITSELF.)

COMPUTER COMMAND CENTER (THE "HEART" OF OPERATIONS THAT CONTROLS ALL OR MOST OF THE VITAL FUNCTIONS WITHIN THE COLONY. IT SHOULD ALSO BE AMONG THE SMALLER STRUCTURES.)

LABORATORIES (PURPOSE SHOULD BE CONSIDERED AND MAY HAVE A BEARING ON NUMBER AND SIZE.)

GREENHOUSE (IT MAY PROVIDE A MEASURE OF SELF-SUFFICIENCY.)

RESIDENCE (DORMATORIES? SEPARATE HOUSING? A COMBINATION?)

RECREATION CENTER (THEATER, GYM, POOL, ETC.)

HOSPITAL

STOREHOUSES/WAREHOUSES

ALSO TO BE CONSIDERED ARE FACILITIES FOR WATER, AIR/WASTE PURIFICATION, SECURITY/SAFETY (CERTAIN TO RAISE THE ISSUE OF NECESSITY), INTRA-COLONY TRANSPORTATION, DINING, EDUCATIONAL/TRAINING, AND OTHER OPTIONS.

THE COST FACTOR MUST ALSO BE RECKONED WITH. THOUGH THE PRICE TAG WOULD BE TRULY ASTRONOMICAL AND IMPOSSIBLE FOR THE LAYMAN TO ACTUALLY TALLY, THE INSTRUCTOR MAY POINT OUT THAT THE COLONY IS "OVER BUDGET," PROMPTING AN ALTERATION OR ELIMINATION OF SOMETHING.]

PROBLEM 2: The colony is intended for approximately 500 people. It must be decided what jobs and skills these people must possess.

[WHILE IT IS NOT NECESSARY TO ITEMIZE 500 JOBS, IT SHOULD BE NOTED WHAT GENERAL OCCUPATIONS ARE NEEDED. WHAT BRANCHES OF THE SCIENCES WILL BE REPRESENTED? WHAT TYPES OF TECHNICIANS MIGHT BE NECESSARY? WILL THERE BE AGE MINIMUMS AND MAXIMUMS? PERHAPS THE ESSENTIAL POINT TO BE REMEMBERED IS THAT EVERYONE WILL HAVE A VITAL PURPOSE AND IS NOT ON SOME KIND OF VACATION. IS IT IMPORTANT TO HAVE SOME INDIVIDUALS WHO CAN DO MORE THAN ONE VITAL TASK? SHOULD PROVISIONS BE MADE FOR CHILDREN BORN DURING THE COLONISTS' TENURE?

THE PROJECT LEADER WILL HAVE TO CONSIDER POTENTIAL PROBLEMS OF MANPOWER SHORTAGE DUE TO ACCIDENT OR DEATH. HE/SHE CANNOT ASSUME THAT EVERYTHING IN AN UNKNOWN AND POSSIBLY HOSTILE ENVIRONMENT WILL RUN SMOOTHLY FOR SIX YEARS.]

PROBLEM 3: The basic supplies of food, water, clothing, and medicine will be taken care of for the most part every two years.

Make a list of other items to be brought on the initial trip.

[THE KEY TO THIS PROBLEM IS REMEMBERING THAT THE COLONISTS WILL BE THERE FOR SIX YEARS AND CAN ONLY BRING ADDITIONAL ITEMS THIS ONE TIME. AGAIN, THERE IS NO NEED TO BE TRIVIAL: A BASIC LIST WILL DO (ADDITIONAL FURNISHINGS, PERSONAL EQUIPMENT, ETC.). THE THOUGHTFUL STUDENT MAY WANT TO ANTICIPATE PROBLEMS. AS SUCH, SPARE PARTS AND EQUIPMENT FOR SPECIFIC FACILITIES WILL PROBABLY HEAD THE LIST. AN EXPLANATION AS TO WHY THE ITEM IS BEING TAKEN ALONG MIGHT BE WARRANTED WITH COST POSSIBLY PLAYING A ROLE.]

PROBLEM 4: It must be decided what laws or rules will govern the colony.

[HOPEFULLY, STUDENTS WILL REALIZE-- PERHAPS WITH THE INSTRUCTOR'S HELP-- THAT THE COLONY IS AN EXTENSION OF THE UNITED STATES AND IS PROTECTED BY THE CONSTITUTION. THOUGH EARLY IN THE CURRICULUM FOR AN IN-DEPTH DISCUSSION OF THE DOCUMENT, A CURSORY LOOK AT IT AND ITS MEANING MIGHT BE APPROPRIATE. HOWEVER, STUDENTS MAY DECIDE THAT THE CONSTITUTION IS TOO FORMAL OR "LARGE" FOR SUCH A COLONY SO FAR AWAY. IN THAT CASE, OTHER REGULATIONS PERTINENT TO THE SITUATION WILL HAVE TO BE NOTED. OF CHIEF CONCERN IN EITHER CASE IS THE ROLE OF THE PROJECT LEADER: IS HE/SHE A VIRTUAL DICTATOR, OR DOES HIS/HER POWER HAVE LIMITATIONS?]

This first phase of four problems to be reckoned with occurs before the actual colonization. The second phase of four problems commences after colonization and establishment of Mars.

PROBLEM 5: You have been on Mars for about 20 months. The operation of the colony has been very satisfactory thus far. But

approximately 200 of the colonists are dissatisfied with the way the project leader is running things. They are perhaps dissatisfied with life in the colony, not realizing the rigors of such a strange environment. Further, they are threatening to return to Earth in the supply ship when it arrives in four months. Their departure will surely doom the colony. You-- the project leader-- call a general meeting to discuss the situation. Should you stay on as leader since you were appointed? Should there be an election? Does the colony really need a leader? How can you forestall the threatened departure and change their minds? In a speech to the colonists you must answer these questions and settle the problem.

[A TOUCHY SITUATION WHERE EMOTIONS COULD RUN VERY HIGH IS THE FEATURE HERE. CERTAINLY THE COLONY SHOULD HAVE LEADERSHIP, BUT SHOULD IT BE THE APPOINTED PROJECT LEADER? AND WILL REMINDING THE DISGRUNTLED COLONISTS OF THEIR CONTRACTUAL OBLIGATIONS MAKE A DIFFERENCE OR MAKE MATTERS WORSE? THE PROJECT LEADER MUST SOMEHOW "SELL" HIMSELF/HERSELF TO THE COLONISTS, WHICH IS THE CHIEF SUGGESTION. THE INSTRUCTOR MIGHT ALSO ADD SPECIFIC CHARGES OR COMPLAINTS THAT COULD BE NEGOTIATED.]

PROBLEM 6: It is the third year of colonization. Two people in among the more vitally important colonial jobs are caught attempting to sabotage the computer center, which would have destroyed the entire colony. The two confess that they wanted to destroy the colony so that no others would be built, as they believe that people should stay on Earth and try to solve the problems there. They defiantly admit that if given another

opportunity they will again attempt the deed. One of them is someone you greatly dislike but the other, much to your dismay, is your best friend and trusted colleague. What is to be done with or to them?

[THIS IS A VALUE-CHARGED DILEMMA. THE CULPRITS' MOTIVE SHAKES THE FOUNDATION UPON WHICH THE COLONY WAS BUILT. ARE THEY RIGHT? IT SHOULD ALSO BE OBVIOUS THAT THEIR CRIME AMOUNTS TO ATTEMPTED MASS MURDER. THE FEELINGS OF THE PROJECT LEADER TOWARD THE CULPRITS ALSO RAISES AN OBVIOUS PROBLEM: WILL THEY BOTH BE TREATED OR PUNISHED IN THE SAME WAY? SHOULD THEY BE IMPRISONED? SHOULD THEY ALLOWED TO CONTINUE IN THEIR JOBS? SHOULD THEY BE EXECUTED? SHOULD OR COULD THEY BE "SIMPLY" RETURNED TO EARTH ON THE NEXT SUPPLY SHIP (ONE YEAR FROM NOW)?]

PROBLEM 7: It is the fourth year of colonization. With great surprise, you have discovered life on Mars-- or rather, it has discovered you. The intelligent beings of Mars confront your colony and demand to know why you have "invaded" their world. You must convince them that you mean them no harm... or do you?

[THE INSTRUCTOR CAN ALTER THIS SCENARION IN VARIOUS WAYS. CHIEF AMONG THEM IS THE PHYSICAL APPEARANCE OF THE MARTIANS. A BENEVOLENT-LOOKING BEING WILL PROMPT AN ALTOGETHER DIFFERENT RESPONSE THAN WILL A HOSTILE-LOOKING BEING. A THOUGHT-PROVOKING CONSIDERATION IS WHY THE MARTIANS WAITED SO LONG TO LET THEMSELVES BE KNOWN. HOW INTELLIGENT OR ADVANCED ARE THEY? ARE THEY APPROACHABLE? CAN SOME SORT OF DEAL OR ARRANGEMENT BE MADE WITH THEM?]

PROBLEM 8: Upon completion of the sixth year, the supply

ship has arrived with relief colonists to take your place in lieu of your final report. While on the return trip to Earth, you write up a report of the colony's mission to be submitted to the President. Success or failure will determine whether or not other will be built. The most important aspect of your report will be your recommendations.

[THIS IS THE EVALUATIVE SECTION OF THE SIMULATION. THE REPORT SHOULD FEATURE THE STRENGTHS AND WEAKNESSES OF THE COLONY AND THE SIMULATION ITSELF. RECOMMENDATIONS CONCERNING THE BLUEPRINT AND ITS COMPONENTS SHOULD BEGIN THE REPORT. PROBLEMS CONCERNING THE OPERATION OF THE COLONY AND THE PROJECT LEADER'S SOLUTIONS TO THEM SHOULD BE A MAJOR PRIORITY. THE REPORT COULD ALSO CONTAIN A CREATIVE ASPECT: MAJOR ACCOMPLISHMENTS, DISCOVERIES, AND EVEN MISHAPS THAT COULD AFFECT FUTURE CONSIDERATIONS. THE CONTACT WITH INTELLIGENT LIFE AND THE AFTER-EFFECTS WILL OBVIOUSLY BE AN IMPORTANT FACTOR.

THE STUDENT SHOULD BE ENCOURAGED TO PERSONALLY COMMENT ON THE PROS AND CONS OF THE PROJECT. THE INSTRUCTOR CAN FURTHER EVALUATE ON STUDENT EFFORT, PARTICIPATION, AND QUALITY OF WORK.]

The Jamestown II simulation has a recommended format. From prior use in the aforementioned courses and grade levels and in large and small groups, the design has a proven flexibility for both instructor and student. The instructor may opt to omit certain problems and/or add new ones. Student input will almost always be insightful and innovative. From past experience with the simulation, United States history classes have gained a better grasp on the principles and hardships of colonization as

they entered the colonial era in their studies. Sociology classes, on the other hand, learned something of values and the effects of decision-making.

Taking into account the probable curricular pressure of time, it is recommended that two class periods be spent on the PREMISE and PROBLEM 1 with the entire class participating. Each student could later submit his/her own blueprint drawing. PROBLEMS 2-7 should each be handled by small groups and presented to the entire class for comment and/or evaluation; approximately two problems can probably be discussed in a single class period. It is the instructor's option to assign groups to a problem with or without revealing its premise. PROBLEM 8 should be the responsibility of each student; a class discussion of its format should precede it. The instructor can use the better examples in a final deorientation before proceeding into the colonial era.

Jamestown II Simulation Format

PROBLEM	PREMISE	RECOMMENDED ASSIGNMENT	RECOMMENDED TIME
1	Colony Blueprint	Have entire class participate in the initial discussion. Each student will submit a blueprint.	2 class periods
2	Colonist occupations	Small group project	1/2 class period (presentation and discussion)
3	Supplies	Small group project	1/2 class period (presentation and discussion)
4	Laws/Regulations	Small group project	1/2 class period (presentation and discussion)
5	Colonist discontent	Small group project	1/2 class period (presentation and discussion)
6	Attempted sabotage	Small group project	1/2 class period (presentation and discussion)
7	Alien confrontation	Small group project	1/2 class period (presentation and discussion)
8	Final Report/ Recommendations	Discuss format with entire class. Each student will submit a report.	1 class period